

## PATENT ABSTRACTS OF JAPAN

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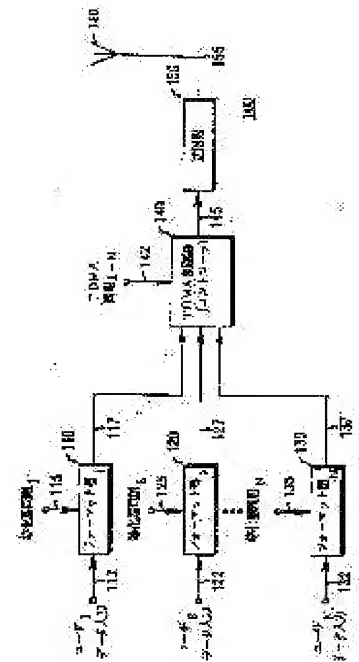
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### (54) TIME DIVISION MULTIPLE ACCESS(TDMA) COMMUNICATION SYSTEM PROVIDED WITH ADAPTIVE EQUALIZATION FUNCTION

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a TDMA communication system that reduces multi-path distortion.

SOLUTION: The communication system of this application is provided with a transmission station that applies time multiplexing to a user message with other message and with a reception station that re-inserts different delay to compensate inter-symbol interference. Each user inputs digital signals 112, 122 and 132 to corresponding equalizer synchronous word blocks 110, 120 and 130. A TDMA controller 140 applies time-multiplex to each user message with other user message to generate a TDMA signal 145. A transmitter 150 transmits the signal 145. A received TDMA signal 225 received by a receiver 220 is applied to a data buffer 230 and a TDMA controller 240. The controller 240 selects a specific user slot on the basis of the signal 225. An equalizer 250 applies time delay spread equalization to a stored user message 235 to output data of a specific user.



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**CLAIMS**

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[Claim(s)]

[Claim 1]A time division multiple access (TDMA) communication receiving station which receives a transmitting TDMA signal which has the 1st user messages, comprising:

It acts to other at least one user messages as time Multiplex of said 1st user messages, Said 1st user messages have the 1st data word and 1st at least one formatted predetermined synchronous word, A synchronous word which continues after said 1st at least one predetermined synchronous word, it is inserted into a user word, and comprise the number of bits smaller than said 1st [ at least ] predetermined synchronous word, and a synchronous word following said back functions as updating equalization — the time division multiple access communication receiving station concerned — : — a means to receive said transmitting TDMA signal.

A means to generate a TDMA control signal by carrying out false rumor RUCHIPU REXX of said 1st user messages from user messages besides the above in a received TDMA signal.

A means to store the 1st user-messages portion of a TDMA signal received according to said TDMA control signal.

A means to equalize the time delay spread characteristic of a data word portion of a stored user message in time to continue after receiving said 1st user message part in said transmitting TDMA signal.

[Claim 2]A time division multiple access (TDMA) communication receiving station which receives a transmitting TDMA signal, comprising:

it is an equalizer which decreases multipath interference distortion — the equalizer concerned — : — it being a reception means which receives other at least one user messages and the 1st user messages by which the time multiplexer was carried out, and, 1st predetermined synchronous word by which said 1st user messages have been arranged in a header of said 1st user messages.

A reception means which has 2nd at least one predetermined synchronous word inserted into data word of said 1st user messages.

A means to generate a TDMA control signal by carrying out false rumor RUCHIPU REXX of said 1st user messages from other user messages in a receiving TDMA signal.

A means to store the 1st user-messages portion in said receiving TDMA signal according to said TDMA control signal.

A means to equalize the time delay spread characteristic of a data word portion of said stored user messages in time to continue after receiving said 1st user message part in said transmitting TDMA signal.

[Claim 3]It is the method of decreasing multipath interference distortion in a time division multiple access (TDMA) communications system, It is a step which formats at least one predetermined synchronous word with the 1st data word, and creates the 1st user messages, A step which comprises a step which inserts a part of predetermined synchronous word into data word in order that this step may update equalization, A step which acts to other at least one

user messages as Multiplex of said 1st user messages, and creates a TDMA signal, A step which transmits said TDMA signal from a transmitting station, and a step which receives a transmitting TDMA signal in a receiving station, By carrying out false rumor RUCHIPU REXX of said 1st user messages from user messages besides the above in a receiving TDMA signal, In time to continue after receiving a step which generates a TDMA control signal, a step which answers said TDMA control signal and stores the 1st user-messages portion in said receiving TDMA signal, and said 1st user-messages portion in said transmitting TDMA signal, How comprising a step which equalizes the time delay spread characteristic of a data word portion of said stored user messages.

[Claim 4]It is the method of decreasing multipath interference distortion in a time division multiple access (TDMA) communications system, A step which comprises a step at which it is a step which formats the 1st predetermined synchronous word into a header of the 1st user messages, and this step inserts the 2nd predetermined synchronous word into data word, A step which carries out the multiplexer of said 1st user messages to other at least one user messages, and creates a TDMA signal, A step which transmits said TDMA signal from a transmitting station, and a step which receives a transmitting TDMA signal in a receiving station, By carrying out false rumor RUCHIPU REXX of said 1st user messages from other user messages in a receiving TDMA signal, A step which generates a TDMA control signal, and a step which stores the 1st user-messages portion in a receiving TDMA signal according to said TDMA control signal, How comprising a step which equalizes the time delay spread characteristic of a data word portion of user messages stored during reception of said 1st user-messages portion in said transmitting TDMA signal.

[Claim 5]It is the method of decreasing multipath interference distortion in a time division multiple access (TDMA) communications system, At least one predetermined synchronous word is formatted with the 1st data word, Are a step which creates the 1st user messages and a step which inserts a part of predetermined synchronous word into data word in order that this step may update equalization is comprised, A step containing the number of bits with less [ at least ] said a part of predetermined synchronous word than said predetermined synchronous word, A step which Multiplex-creates a TDMA signal by making said 1st user messages into other at least one user messages, A step which transmits said TDMA signal from a transmitting station, and a step which receives a transmitting TDMA signal in a receiving station, By carrying out false rumor RUCHIPU REXX of said 1st user messages from user messages besides the above in a receiving TDMA signal, A step which generates a TDMA control signal, and a step which stores the 1st user-messages portion of said receiving TDMA signal according to said TDMA control signal, According to each reception of said at least one predetermined synchronous word portion of the 1st user messages by which false rumor RUCHIPU REXX was carried out, In time after receiving a step which adjusts a time delay spread parameter of a means to equalize, and said 1st user-messages portion in said transmitting TDMA signal, How comprising a step which equalizes the time delay spread characteristic of a data word portion of said stored user messages according to said TDMA control signal.

[Claim 6]The equalizer according to claim 2, wherein said means to equalize answers reception of at least one predetermined synchronous word of said 1st user message and contains a means to adjust a time delay spread parameter of said means to equalize.

[Claim 7]The equalizer according to claim 6 characterized by a thing to which said means to equalize follows reception of said 1st user messages in a TDMA signal which said receiving station received, and for which both functions of adaptation and equalization are performed in a certain time at least.

[Claim 8]The equalizer according to claim 2, wherein said 2nd synchronous word comprises the number of bits smaller than said 1st predetermined synchronous word and said 2nd synchronous word gives a synchronous update function during transmission of said data word.

[Claim 9]The equalizer according to claim 8 with which said 2nd synchronous word is characterized by having length shorter than a half of said 1st synchronous word length.

[Claim 10]The equalizer according to claim 2, wherein said means to store is storing at least one predetermined synchronous word.

[Claim 11]The equalizer according to claim 10 with which said means to equalize is characterized by the 2nd [ said ] predetermined synchronous word and growing into said means to store, from a means to take correlation with said a part of 1st [ said ] predetermined synchronous word currently stored.

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[Translation done.]